US005222364A

United States Patent [19]

Carns et al.

[11] Patent Number: 5,222,364

[45] Date of Patent: Jun. 29, 1993

[54] **RECOVERY OF AROMA GASES**

[75] Inventors: **Lawrence G. Carns**, Plain City; **James Tuot**, Dublin, both of Ohio

[73] Assignee: **Nestec S.A.**, Vevey, Switzerland

[21] Appl. No.: **980,025**

[22] Filed: **Nov. 23, 1992**

Related U.S. Application Data

[62] Division of Ser. No. 760,662, Sep. 16, 1991, Pat. No. 5,182,926.

[51] **Int. Cl.**[5] **A23F 1/08**

[52] **U.S. Cl.** **62/15**; 62/538

[58] **Field of Search** 62/8, 12, 15, 10, 532, 62/533, 534, 538, 539; 426/478, 486

[56] **References Cited**

U.S. PATENT DOCUMENTS

Re. 24,954	3/1961	Church	55/302
3,021,218	2/1962	Clinton et al.	99/71
3,535,119	10/1970	Klein et al.	426/594 X
3,757,497	9/1973	Ray	55/302
3,765,904	10/1973	de Roissart et al.	99/71
4,007,291	2/1977	Siedlechi et al.	426/594
4,854,951	8/1989	Stephenson	55/294
4,885,016	12/1989	Griffiths	62/532

Primary Examiner—John C. Fox

[57] **ABSTRACT**

Coffee aroma gases are conveyed to a cryogenic collector in which liquid nitrogen is sprayed directly into the aroma gas stream to rapidly condense the aroma gas and form finely divided particles of coffee aroma frost suspended in a stream of nitrogen gas, while minimizing contact of the cooled gas with the walls of the collector. The suspension of aroma frost particles in gaseous nitrogen is passed through a tubular porous filter to remove the aroma frost particles which collect on the outer surface of the tubular filter, with the nitrogen gas passing through the porous filter and being exhausted from the collector. The porous filter is periodically back pulsed to dislodge aroma frost particles collected on the outer surface of the tubular filter, with the particles being recovered for incorporation in soluble coffee products.

7 Claims, 2 Drawing Sheets